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(Illustrated articles are marked with an asterisk.)

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Table listing sections I through IX, including 'ELECTRICITY', 'ENGINEERING', 'HORTICULTURE', 'MEDICINE AND HYGIENE', 'METALLURGY', 'METEOROLOGY', 'MISCELLANEOUS', and 'TECHNOLOGY', with page numbers.

THE MAGAZINE GUN AS A MILITARY ARM.

Military authorities are by no means agreed that the magazine rifle is superior to the breech-loader for the use of the soldier; and though Europe is hurriedly exchanging the former for the latter, the voice of indignant protest is making itself heard in the military journals, and with no uncertain sound.

Though one of the first captains in Europe, Gen. Benedeck was no match for "Gen. Needle-gun." This was in 1866. In 1870, the needle gun had another triumph, and backed by discipline and the power of rapid mobilization, it proved too much even for the much vaunted chassepot and mitrailleuse.

The friends of the new arm, "M. 71-86," like to point out that it is the old, reliable "Mauser" single-loader fitted with a magazine; but the mechanism of the old gun is simple, and of the present one complex. It is not necessary for us, following our German contemporary, to discuss the imminency of another Franco-German war and the consequent danger of adopting an arm which requires familiarity with new tactics.

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Whoever may have followed the various trials that have been made with the magazine gun in the hands of the common soldier, or at least those few which have been published, can scarcely fail of surprise that the great powers, one and all, should have decided to adopt it. Of course, it is to be expected that continual handling will bring a certain amount of precision; but in these days of great armies, when a million men are set afield by a single power, it is necessary to count the cost of learning to use a new weapon, and to learn whether or no it may be relied upon in times of excitement, when roughly and awkwardly handled.

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THE CELESTIAL WORLD.

THE CONJUNCTION OF VENUS AND SATURN.

The near approach of two large planets is a noteworthy event on astronomical annals. Such an event occurs on the 30th of May, at noon, when Venus and Saturn are at their nearest point, Venus being 2° 15' north of Saturn.

The planets are invisible to the naked eye at the time of conjunction, but powerful telescopes will bring them out even in the full sunlight. The western sky, however, will present a charming picture on the evenings of the 29th and 30th. Venus, the largest and most beautiful star that shines in the sky, is as easily recognized as the sun or moon. Saturn may be easily found

by means of the two first magnitude stars, Castor and Pollux, a few degrees north of the planet. On the 29th Saturn will be east of Venus, and on the 30th he will be found on the west of his brilliant rival.

The reason for the meeting and parting of the two planets may be easily explained. Venus is an inferior or inner planet, and as seen from the earth is moving eastward or from the sun. Saturn is a superior or outer planet, and seems to be moving westward or toward the sun. When two planets are traveling, the one toward the east, like Venus, and the other toward the west, like Saturn, unless there be a change in their course, they must meet and pass on the celestial road.

It is not only a pleasing spectacle to behold the queen of the stars and the ringed wonder of the skies in near proximity, but the interest of the meeting is increased by the near neighborhood of the stars Castor and Pollux. The beaming planets and two first magnitude stars form a rare picture of planetary and starry beauty, the shining quartet illustrating the contrast between inherent and reflected light.

The moon in her first quarter will add her soft light to the starry show, and the exhibition will continue until 10 o'clock, when the planets will slowly disappear behind the western hills.

It will be almost equally interesting to watch the planets as they approach each other before the 30th or as they recede from each other after the 30th.

THREE PLANETS VISIBLE IN VIRGO.

Jupiter, Uranus, and the asteroid Vesta are now in the constellation Virgo, and are all visible to the naked eye. An observer glancing at the eastern sky in the early evening will behold Jupiter in his most superb aspect as he slowly rises with stately step toward the meridian, holding as prominent a place in the east as Venus holds in the west.

Uranus, the second star of the trio, may be looked for about 20° north west of Jupiter and a little more than 2° south of the third magnitude star Gamma Virginis. Vesta may be found about 12° north of Jupiter and a few degrees northeast of the third magnitude star Zeta Virginis.

Uranus and Vesta shine as stars of the sixth magnitude, the smallest stars perceptible to the naked eye. Vesta is the largest of the family of 265 asteroids, and the only one visible to the unaided eye. She is less than 500 miles in diameter and yet looks to terrestrial observers as large as the giant planet Uranus, who is more than 31,000 miles in diameter.

Jupiter, Vesta, and Uranus form an isosceles triangle, or one that is nearly so, of which Jupiter and Vesta are the base and Uranus is the summit.

A New System of Boot Making.

The London (Eng.) Shoe and Leather Record describes a system of fastening the soles to boots and shoes, in which the fastenings are driven from the inside, the fastenings being first placed in the insole and then the upper lasted over them. The fastening is of brass, with a conical front, barbed all around the point, and the head is flat and neatly formed.

THE A. A. GRIFFING IRON CO., of Jersey City, N. J., have issued a handsome illustrated catalogue of the Bundy patent radiators, which they make in so many sizes and styles, and in such great quantities, that it requires a very extended manufacturing plant to enable them to keep up with the demand.